



Modeling Quarterly Review Meeting **Watershed Modeling**

October 4, 2016

CBPO Conference Room - The Fish Shack
410 Severn Avenue Annapolis, MD 21403

For Remote Access:

Adobe Connect: <https://epawebconferencing.acms.com/modeling> (enter as guest)

Conference Line: (866)-299-3188 **Code:** 410-267-5731

Event webpage: <http://www.chesapeakebay.net/calendar/event/24281>

10:00 Announcements and Amendments to the Agenda – Dave Montali, WVDEP and Lee Currey, MDE

10:05 Phase 6 Watershed Model Schedule Update – Lee Currey, MDE and Dave Montali, WVDEP

Lee and Dave will present an updated Phase 6 development schedule with links to the 2017 Midpoint Assessment schedule and the WQSTM and PSC schedules.

Upcoming *Beta* releases of Phase 6 with their schedules, as well as the scheduled peer review of the Phase 6 Model, will be discussed.

10:30 Summary of Phase 6 Progress Over Last Quarter - Gary Shenk, USGS and Gopal Bhatt, PSU

The overall progress of the Phase 6 Model including the collection of final inputs for *Beta* 4 and the application of *Beta* 3 to climate change and Conowingo infill analyses.

10:40 Application of the *Beta* 3 Calibration to Climate Change Analysis – Gopal Bhatt, PSU, Kyle Hinson, CRC, and Gary Shenk, USGS

The Phase 6 *Beta* 3 application to climate change analysis for the year 2025 using trends derived from an 87 year record precipitation records in the Chesapeake watershed will be reviewed with respect to how attainment of water quality standards change under the estimated 2025 loads. In addition, refinements to a scoping scenario of 2050 estimated climate change in the Chesapeake watershed will be presented.

11:40 Technical Aspects of Factoring Conowingo Infill Analyses Into Phase III Watershed Implementation Plans – Lee Currey, MDE

Approaches to the qualification of Conowingo infill's influence on Phase III WIPs will be presented.

12:00 LUNCH

12:30 Application of the *Beta 3* Calibration to Conowingo Infill Analysis – Gopal Bhatt, PSU and Gary Shenk, USGS

The application of Phase 6 *Beta 3* to Conowingo infill analysis with representation of estimated loads from an infilled condition Conowingo scour under moderate high flow and load conditions seasons will be presented. An initial estimate of the influence on Chesapeake water quality will also be examined.

1:00 Visualization of Key Phase 6 *Beta 3* Scenarios – John Wolf, USGS and Lew Linker, EPA

A visualization of watershed loads from key scenarios of No Action, 1985 Progress, 1995 Progress, 2005 Progress, 2015 Progress, Estimated TMDL Loads (2025 est.), E3, and All Forest will be presented. Ideas for how to best represent these key scenarios as we finalize the Phase 6 Model will be discussed and well as ideas for how to best visualize, on a two-track strategy for both decision makers and the general public, the modeling findings on climate change and Conowingo infill.

1:45 Mass Balance Estimate for Ammonia **Emission Controls – Gary Shenk, USGS and Lew Linker, EPA-CBPO**

An approach to decrement the captured ammonia **emission** loads applied to the landscape for avoided air **nitrogen** loads to tidal Chesapeake waters will be described.

2:00 Expanded and Improved Estimates of **Nitrogen Wet **Deposition** Loads – Jeff Grimm, PSU**

Jeff will review the final refined assessment of hourly wet **deposition** estimates from 1985 to the present and provide a schedule for the final report.

2:30 ADJOURN



Modeling Quarterly Review Meeting Estuarine & Ecosystem Modeling

October 5, 2016

CBPO Conference Room - The Fish Shack
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10:00 Announcements and Amendments to the Agenda – Lee Currey, MDE and Dave Montali, WVDEP

10:05 WQSTM Calibration to the Phase 6 *Beta* 3 Loads – Carl Cerco, U.S. CoE ERDC

The Water Quality and Sediment Transport Model (WQSTM) calibration to the Phase 6 *Beta* 3 loads will be examined in detail.

10:35 Progress in the Simulation of Tidal Wetlands and Shallow Water Simulation – Carl Cerco, U.S. CoE ERDC

Progress in the simulation of tidal marsh attenuation of **nitrogen**, phosphorus, and sediment will be described as well as the general progress in developing an improved representation of shallow water in the Water Quality and Sediment Transport Model (WQSTM).

11:00 WQSTM Sensitivity Scenarios – Lew Linker, EPA - Ping Wang, VIMS - Richard Tian, UMCES

Sensitivity scenarios roughly representing the high load condition of 1985, the low load condition of all-forest, the intermediate loads of 2009, and the Phase II WIPs will be reviewed for relative differences in the response to nutrient loads between the 2010 WQSTM and the current WQSTM calibration. In addition, an initial assessment of tidal Chesapeake nutrient limitation based on observed data, the 2010 version of the WQSTM, and the latest version of the WQSTM will be presented. Time series and seasonal nutrient and light limitation data will be presented from 1991 to 2000 for each of the three sources.

12:00 LUNCH

12:30 2025 and 2050 Climate Change Analysis – Lew Linker, EPA, Carl Cerco, U.S. CoE ERDC, Ping Wang, VIMS, and Richard Tian, UMCES

An initial examination of the influence of estimated 2025 temperature and precipitation on Chesapeake water quality standards will be presented. The separate elements of 2025 estimated changes in temperature, hydrodynamics, tidal wetland attenuation, and watershed loads will be quantified. Refinements to the estimated 2050 temperature and precipitation changes will also be presented.

1:00 Sediment Composition and Diagenesis – Jeff Cornwell, UMCES

Characterization of the estimated reactivity of organic material in Conowingo sediment, and their estimated biogeochemical fate in tidal water deposition will be described.

1:20 Lower Susquehanna River Impoundment Modeling Studies – Jim Fitzpatrick and Mark Velleux (HDR)

Final outputs from a sediment and nutrient mass balance model of Conowingo Pool called the Conowingo Pool Mass Balance Model (CPMBM) will be presented and the integration with the Phase 6 Watershed Model will be discussed.

2:00 Chester River Shallow Water Multiple Models – Richard Tian, UMCES

Richard will describe the application of FVCOM, an unstructured grid model, in the Chester River and the estimated changes to water quality under conditions of a 1985 high load scenario, an All Forest low load scenario, and a TMDL condition scenario.

2:30 ADJOURN